

## REMARKS

Reconsideration is respectfully requested in light of the foregoing amendments and remarks which follow is respectfully requested. Entry of the amendment is respectfully requested since it does not introduce new matter and would lessen the issues on appeal.

Claims 1-8 are before the Examiner. Claims 1, 5 and 6 are amended. Claim 1 has been amended to clarify the BET range and thereby its use as a reinforcing filler. See Table 2 and page 7, lines 14 -26. Claims 5 and 6 have been amended to replace "and/or" with -and -. Claims 5 and 6, as amended, more closely describe the process of in Example 3.

Claim 1 is rejected under 35 USC 102(b) as being anticipated by Bergstrom et al. (USP 6384125) and further evidence by Griffith et al (USP 5908660) and Burns et al (USP 6051672). Applicants respectfully traverse.

The Examiner has chosen to treat claim 1 as a product by process claim and maintains his position that "pyrogenically produced" silica does not distinguish the claimed product from that taught by Bergstrom et al. (Applicants take exception to this since pyrogenic silica is a recognized chemical entity with a CAS designation and is distinct from precipitated silica.) The Examiner then wishes Applicants to experimentally distinguish the products since the Office does not possess the laboratory facilities to do this. Applicants believe this requirement is premature.

The product as claimed does not specify a detailed method of manufacture. It merely identifies the silica as pyrogenically produced silica (fumed silica, pyrogenic silica) and then further identifies the product by reciting its physiochemical characteristics. Certain of these characteristics are associated with destructuring- e.g., particle size and DBP % values. Others, e.g. C content, are associated with silanization. In addition, the claim specifies the presence of functional groups, e.g. vinyl groups, associated with silanization. The claimed vinyl groups are shown to improve tear resistance. See Table 5 on page 15 of the specification. The physical structure of the silica as well as its chemistry are critical to attaining the advantages shown in the

Table.

Typically, the burden in the context of product by process claims shifts to Applicants to distinguish the product, when the Examiner has established that it is reasonably certain that the product taught by a reference is the same as or similar to that claimed. See MPEP 2113 and the cases cited therein. Applicants respectfully submit that the Examiner has not met his initial burden for the reasons that follow.

Synthetic silica comes in many forms and each form, due to its process of manufacture, has associated with it unique, distinct properties that correlate with specific applications, uses. Pyrogenic silica and precipitated silica (Bergstrom et al.) are recognized distinct forms of synthetic silica. See col. 3 of USP 3,988,162 and col.1 of USP 5,419,888. Pyrogenic silicas are formed from vapor phase processes and typically have high external surface areas and structure. Precipitated silicas are formed from a liquid phase process and typically have internal porosity or void volumes. Also see col. 1 and 2 of USP 5,827,363.

Prior to Applicants' invention, both precipitated and pyrogenic silica have been "destructured". See USP 6,193,795 (pyrogenic silica) ('795)<sup>1</sup> and USP 5,827,363 ('363) (precipitated silica). The destructuring processing conditions for each silica type are quite distinct and as are the physical characteristics of the resultant destructured particles. The destructuring of precipitated silica is shown in Example 3 of the '363 patent. The use of a simple attritor milling suffices. Severe conditions are not employed. The destructured particles maintain their internal porosity. Both BET and DBP values are reduced relative to the starting material. See Table 5 of the '363 Patent. The '363 particles have ink jet coating applications due to the properties imparted to them by the destructuring process.

In contrast, the '795 patent teaches destructuring conditions for pyrogenic silica, which are harsher than those employed in the '363 patent. See, e.g., col. 3-5 of the '795 patent. There is a forty to ninety percent lowering in structure for pyrogenic silica and an increase in bulk

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<sup>1</sup> Previously submitted.

density ( col. 5, lines 61-67). In contrast, there is only a thirty to sixty percent lowering of the structure for precipitated silica ('363 at col.2 l.62 – col. 3, l. 11). Internal porosity of the precipitated silica remains unaffected by destructuring in contrast to pyrogenic silica where the structure is on the external surfaces of the particle. Accordingly, the silica type is critical and would distinguish the “destructured” products. In addition, the claimed products recite other distinguishing characteristics.

As argued in the prior response, Bergstrom et al. do not teach a destructuring step or conditions. Accordingly, it would appear in light of '363 patent, that the Bergstrom et al product would be expected to have a porous structure and higher DBP values, unless it is destructured. The claim requires DBP values less than 200 or not determinable.

It is Applicants' position that Bergstrom et al. does not reasonably teach the product as claimed. A proper prima facie case has not been established. The Bergstrom et al use of precipitated silica as an educt in contrast to Applicants' use of pyrogenic silica would be expected to impact product characteristics. A destructuring step is needed to lower DBP values for precipitated silica as well as pyrogenic silica. The recited claimed characteristics distinguish the Applicants' product (reinforcing filler) and Bergstrom et al.'s products. There is no anticipation.

Withdrawal of the rejection is respectfully requested.

Claims 1-8 are rejected under 35 USC 102(b) as being anticipated by Barthel et al. (USPP 2003/0138715) and further evidenced by Scharfe et al. (USPP 2003/0138715) and Mangold (USP 5,976480). Applicants respectfully traverse.

#### **Product claim 1**

The Examiner has taken the position that since ball mills are mentioned in the Barthel et al. patent and employed in the preparation of the product, there would be an expectation that the

Barthel et al. product would inherently have the claimed DBP values.

To rely on the Doctrine of Inherency, the presence of the property must be reasonably certain. More than speculation is required to establish its presence.

Here, it appears that a destructuring step or destructuring conditions must be present for a time sufficient for DBP values to be lowered. Mere grinding is not sufficient to lower DBP values for pyrogenic silica. See Nargiello et al ('795).

Barthel et al use pyrogenic silica particles, which are highly porous. The porosity is located on the external surface of the particles. A high DBP value would be expected for pyrogenic silica unless there is a destructuring step. See figures 1 (DBP) of the '795 Patent. Destructuring also impacts other properties of pyrogenic silica. See figure 2 (agglomerate size) and 3 (bulk density) of Nargiello et al. ('795).

Nargiello et al. teach that the grinding process (destructuring) of the "present" invention is an intensive milling process and goes beyond particle size reduction to achieve destructuring of pyrogenic metallic oxides. See col. 2, l. 20-48. Nargiello et al. specifically contrast how their destructuring operation is distinct from that employed in the "normal" operation of a ball mill. See col. 3 at l.42-56 and col. 5 at lines 14-66. Before and after results relative to destructuring are shown in the table appearing in col. 7 and also in Tables 1 and 2.

The Barthel et al. has been reviewed for conditions similar to those taught by Nargiello et al. for destructuring to occur. No passages, teaching these conditions, were found. Ball mills are mentioned in paragraphs [0064] and [0065]. Deaggregation of silica is mentioned in paragraph [0066]. No detailed operating conditions were mentioned.

Applicants respectfully submit that there is no basis which would support a reasonable expectation that the Barthel et al. product is inherently destructured. Further, there is no mention

of a destructured silica product having vinyl groups attached to its surface. Applicants have demonstrated that such a product gives rise to the tear resistance property in silicone rubber when employed as a reinforcing filler.

Withdrawal of the rejection is respectfully requested since inherent anticipation has not been established with reasonable certainty. The presence of conditions which would give rise to the destructuring of pyrogenic silica are not present. Pyrogenic silica would be expected to have high DBP values unless destructured to decrease its porosity.

#### **Process claims 2-6 and 8**

The process as claimed requires the performance of both a destructuring step (step c) and a step for recovering a silanized, destructured product (step d). A destructuring step is not taught by Barthel et al expressly or inherently. Note discussion above. Further, one has to have knowledge of the presence of a destructured, silanized product to recover it. The destructured product would not be inherently present and recovered since the requisite conditions for destructuring pyrogenic silica are not present. See discussion above.

One has to have knowledge of destructuring conditions to operate a ball mill at the requisite conditions to form a destructured product. The required conditions are not taught or employed by Barthel et al. The claimed DBP values correlate with a destructured product.

Claims 5 and 6 (as amended) require both a grinding and a conditioning step. These steps are performed on a destructured silanized product. Table 5 shows the step sequence is critical to obtaining the desired product which imparts an enhanced tear resistance to silicone rubber. Compare results of Examples 3 to those of Examples 7 and 11. The silicone product resulting from the use of the Example 3 product (both grinding and heat treatment steps are performed) is superior in terms of tear resistance to the silicone product achieved by the use of silanized, destructured silica of Examples 7 and 11.

There is no anticipation. The recovery and destructuring steps required by the claims are

not taught. Additionally, the steps and the step sequence required by claims 5 and 6 are also clearly not taught.

Withdrawal of the rejection is respectfully requested.

**Product claim 7**

Barthel et al do not teach a tear resistant silicone rubber product, expressly or inherently. A destructured , silanized pyrogenic silica is not taught by Barthel et al. Such a filler is required for the property to be achieved- filler concentration and type (note also BET value range).

Since, each and every element required by the claim is not taught by Barthel et al., there is no anticipation.

Withdrawal of the rejection is respectfully requested

**Request for Interview**

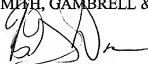
Applicants respectfully request either a telephonic or an in-person interview should there be any remaining issues.

**CONCLUSION**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Therefore, it is respectfully requested that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. 1.136(a), and any fees required therefore are hereby authorized to be charged to **Deposit Account No. 02-4300, Attorney Docket No. 032301.615 (39509.236168).**

Respectfully submitted,  
SMITH, GAMBRELL & RUSSELL, LLP



Thomas G. Wiseman  
Reg. No.35,046

Date: March 26, 2009  
1130 Connecticut Ave., NW, #1130  
Washington, D.C. 20036  
Telephone: (202) 263-4300  
Facsimile: (202) 263-4329

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